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*A Statistical Investigation into the Mortality of Miners in the District of St. Ives, and the Agricultural Population in the District of St. Buryan.*

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In continuation of my former papers on the Mortality of the Cornish Miners, I have examined the district of St. Ives, which embraces the town and parish of St. Ives, Towednack and Zennor, forming the north-eastern boundary and seaboard of the western extremity of Cornwall. St. Ives Bay terminates on the south, in the delta of the small river of Hayle, which extends beyond Trewinnard. And as the sea at Marazion, indents into the land on the south, the neck of this peninsula by which the district is joined to the main land is not more than four and a half miles across. Thus, then, so far as the geographical position of the district is concerned, it is surrounded by an equalizing sea temperature and good refreshing air. The population is of a very mixed character. The town of St. Ives has between six and seven thousand inhabitants, the chief portions of which are engaged in maritime occupations, as sailors and fishermen. Most of the others are tradesmen, shop-keepers, and such general inhabitants as are commonly found in small towns. The town itself is situated on the north-eastern extremity of the district, on the base of a narrow neck of land, and is much exposed to the S.E., E., N.E., and N. winds, and less so to the N.W., while it is entirely sheltered from the S. and S.W. winds. The streets are very narrow, very irregular, and the houses in the lower portions of the town low and crowded together. As a large portion of the inhabitants are engaged in the fisheries of the coast, and space is valuable, the cellars are often

beneath the dwelling-rooms, and hence, during the pilchard season, the smells are very offensive, and ever present. But the town is, I believe, far from being unhealthy. The men are an industrious and a hardy race; they pursue their aquatic vocations not only at home, but on the shores of Ireland, the Isle of Man, and the Scotch coasts, returning in the early autumn or late summer to our annual pilchard fishery. The country around is not a very highly agricultural one. The farms are small, exposed, unwooded, and distant from each other. In the whole of the district, there is no shelter to be found from trees or wooded lanes; from nothing in fact but the natural undulations of the ground. In passing along the northern shores, the cliffs are bold and rocky, and jet abruptly into the sea. To the north of St. Ives there is the Island, and westward Clodgy Point, Hor Point and Peneynis Point, Carmen Point, and so on to the west to Gurnard's Head. From these cliffs the hills sweep up a little inland to a moderate height, so that from the rocks of the sea-coast there is a continuous ascent till you reach the top. The highest points are attained at various, but generally short distances inland. A little to the west of St. Ives rise the Penbeagle Hills, which run in a south-easterly direction, having one slope to the N.E., the other to the S.W. To the west and a little to the north are Trevalgan and little hills which are continuous with Morra Hill, and the Zennor Hills forming the Zennor Downs. On the south side the district is bounded by the elevations of Castle-an-dinas, Trink Hills and rocky downs. The whole of the district is surrounded, therefore, by a range of hills having short undulating margins towards the circumference, but forming a swampy and rough irregular basin in the centre. Halse Town, which is a large villago built of good stone houses, detached from each other, with gardens around, lies on the northern extremity of the south-western slope of the Penbeagle Hills, and are entirely unsheltered from the N.W. and S.W. winds. Towednack is in the bottom flat of the basin, and is unsheltered and desolate. On the hills to the south of the church, are the mining villages of Amal-veor, Embla, &c., where there are small farms; but the cottages are

unfit, many of them, for healthy occupation. From Embla you descend the valley to Naneledrea, and within the district there are several small groups of houses, such as Chyponds, &c., occupied by miners.

The district is unwooded and much exposed to every wind, and as it lies on the northern slope of the water-shed of the country, it is wet, cold, and bleak.

The population is mixed, but the miners invariably occupy the most exposed and worst built cottages, and are the most unhealthy of the inhabitants. The population of St. Ives, is about 6506, probably more at the present time, and a large portion of these are fishermen. There are engaged in the pilehard fishery 50 first-class boats, carrying five men and a boy, and 60 second-class boats, carrying four men and a boy. Besides these, there are 290 seine boats, 30 tow boats, and 10 followers, making a total of 440 boats engaged in the pilehard fishery. But the number of seines is no guide to the number of men employed, as one crew, from the arrangement of the fishery, will man several seines in rotation; but as far as I can ascertain, the separate crews are 14, and 14 to a crew, making 196 men and boys. But the men and boys engaged in the drift nets are about 500, a hardy and intelligent race; ; thus making about 696 men and boys actively engaged. Towednaek has a population of 1057, chiefly agriculturists and miners, scattered about in the various villages that dot the hill sides. Towednaek, in 1841, had a population of 967, which in 1851 had increased to what I have now estimated it at. But the population of Zennor has decreased: in 1841 it was 1025, but in 1851 it had decreased to 918, making a total of mixed population of 8,481.

The soil is peaty and is much employed by the miners and agricultural labourers for firing, and the right of free cutting it is a bonus given to the occupiers of some of the cottages. The cottages are of much the same description as those found in the rougher portions of Lolant already described, except perhaps that they are in worse situations and more surrounded by cesspools, broken roads and pools of undrained rain. The village



of Amal-voer is like a cluster of cottages huddled together on the top of a hill with scarcely space between them for access. The bed-rooms are rarely more than one in each house, and open to the ceiling. This gives the appearance of space; but if the roof is slate, it produces great heat during a summer day. During the last summer, the heat of our hottest days in these rooms was intense, which during the night was converted into great cold, by rapid radiation, and three cases, where I had taught the women to read a thermometer, the difference between the temperature night and day amounted to 25 deg. Fahrenheit, and commonly of 10 and 17 degs. If, therefore, a miner caught cold, and it became necessary for him to give up work for a day, it became a matter of importance that he should not stay in bed during that day, for the variations of temperature generally brought on low kinds of fevers and general undermining of the health. In recording my cases of fever, I find houses plastered against the tiles and the bed-room boarded off, was most free; next, houses with thatched roofs, and then those which were plastered, and the worst were those with slate roofs unplastered. Before any decided improvement can take place in the health of the miners, another description of cottage and conveniences must be supplied them.

The whole of the central part of this district is granitic, and its southern border is a coarse granite, as are all the hills; but in no part except on the north in one spot, does the granite reach the coast and that is at Wicca Cove. The slate extends along the coast from the Towans (sand hills) of Lelant to Porthminster Point, where it is associated with Trappean Ash, and rocks, and the Granvæke Series which fringes the coast to beyond westward of the Gurnard's head. At and around St. Ives, does it extend the most inland; so far indeed as Hellsvean and Hellsveor, Trowan, &c. Over the hornblende and trappean rocks the soil is good and bears good crops, which suffer however from the northern winds. But throughout the granite district the fertility of the soils is not so good. But where cultivation is carried on, the fields bear fair crops of barley and oats, as at Chyponds, Embla, &c. As it regards the mines, they are chiefly situated in Lelant and on the borders of Towednack, but in the neighbourhood of

St. Ives, one of the most valuable mines of the district is situated, and the minerals chiefly run near the junction of the granite with the slate and trap rocks, and especially through the slate.

The habitations of the miners, in the midst of the district are frequently of the worst description, badly built, in exposed situations, and without any of the ordinary conveniences of life. As this district lies along the northern slope of the water shed of the district it is not to be wondered at if we find the district a very unhealthy one. If in these examinations, I had taken as a district, the mining portions of St. Ives and Lelant the rate of mortality among the mining population would be worse than it now seems to be.

### ST. IVES.

1837.

The records for this year are imperfect, extending only from July to December. The number of deaths occurring during these six months is 48. Of these 6 were miners, 20 males not miners, and 22 were females.

Of the 6 miners, 50·00 per cent. died of consumption,

|       |   |                       |
|-------|---|-----------------------|
| 16·66 | „ | pneumonia,            |
| 16·66 | „ | diarrhœa,             |
| 16·66 | „ | was scalded to death. |

The oldest miner died at 76 of diarrhœa; the youngest at 25 of consumption. The average age of death is 45 years and 8 months. Of other males, not miners above 10, 10·00 died of consumption; and of females above 10, 4·50 per cent. died of the same disease. From this it appears that 66·66 per cent. of miners died of thoracic diseases.

1838.

The deaths during the year are 95, and of these 6 are miners, 37 males not miners, and 52 females.

Of the 6 miners, 66·66 per cent. died of consumption,

|       |   |                            |
|-------|---|----------------------------|
| 16·66 | „ | were killed,               |
| 16·66 | „ | from injuries to the foot. |

The oldest miner died at 67 of consumption, the youngest at 45 of consumption. The average age for the year is 54 years and 6 months. Of the males not miners, who died above 10 years of age 18·91 per cent. died of thoracic diseases; and of the females above 10, 21·37 per cent. died from the same diseases.

## 1839.

The number of deaths during the year is 111; of these, 11 are miners, 52 males, not miners, and 48 females.

Of the 11 miners, 63·33 per cent. died of consumption,

|       |   |                          |
|-------|---|--------------------------|
| 9·09  | „ | bronchitis,              |
| 27·27 | „ | were killed by accident. |

The oldest miner died at 73 of consumption; the two youngest at 31, one of consumption and the other was killed. The average age of the miner for the year is 47 years 6 months.

Of the males, not miners, who died above 10, 20·83 per cent. died of consumption; and of the females above 10, 19·35 per cent. died from the same cause.

## 1840.

The number of deaths for the year is 184; and of these, 13 were miners, 86 males, not miners, and 85 females.

Of the 13 miners, 38·46 per cent. died of consumption,

|       |              |
|-------|--------------|
| 23·07 | were killed. |
|-------|--------------|

Of the remainder, one died of age at 78, 1 of hemiplegia, 1 of fever, 1 of cholera, and 1 of small pox.

The oldest died at the age of 78, and the youngest was killed in a shaft at 15. The average age for the year is 42 years 5 months.

Of the males, not miners, above 10, 33·33 per cent. died of consumption, and 3·33 per cent. of bronchitis; and of the females above 10, 27·77 per cent. died of consumption, and 5·55 per cent. of bronchitis.

## 1841.

The deaths during the year is 141; of these 6 are miners, 64 males, not miners, and 71 females.



Of the 6 miners 66·66 per cent. died of consumption,  
 16·66                   ,,           bronchitis,  
 16·66                   ,,           fever.

The oldest miner died of chronic bronchitis at 66, and 4 died at 29, 3 of consumption and one of fever. The average age for the year is 39 years 8 months.

Of males, not miners, above 10,  
 27·58 per cent. died of consumption,  
 13·79                   ,,           bronchitis,  
 3·44                   ,,           asthma.

Of females, above 10,  
 17·30 per cent. died of consumption,  
 7·69                   ,,           bronchitis.

In reviewing the mortality of the last five years, the first thing that strikes attention is the great difference observed in the number of deaths in each year. In 1837, which is but a record of six months, the number is 48; in 1838 the number is 95, which being about twice the number in the previous year, is not remarkable; but in 1839 the number rises to 111; in 1840 to 184; which in 1841 again sinks to 141. In 1837, 1838 and 1839, there seems to have been no epidemic, and no one disease, beside consumption, prevailed. In 1840, however, small-pox prevailed, and was very fatal, 28 males and 23 females dying from this cause alone. 1839 seems to have been a generally unhealthy year, the chief causes of death being dropsy and disease of the stomach.

Deaths arising from age are instructively peculiar. Among the miners there is only one recorded, in 1840, at the age of 78; and he had for many years been laid up from all active work.—The following table will show the proportions.

Deaths arising from Age.

|                       | 1837.    | 1838.                           | 1839.         | 1840.        | 1841.        | Average. |
|-----------------------|----------|---------------------------------|---------------|--------------|--------------|----------|
| Miners....            | ,,       | ,,                              | ,,            | 1 at 78.     | ,,           | 1 in 42. |
| Males, not Miners.... | ,,       | 3 at 87, 74, 6, oldest 94, 72.  | 92, 91.       | 6, oldest 80 | 8, oldest 92 | 1 in 11. |
| Females..             | 1 at 92. | 11, oldest 9, oldest 88. at 90. | 9, oldest 88. | 9, oldest 92 | 3, oldest 90 | 1 in 3.  |

Having thus seen the proportions of death arising from age, we may next compare them with death arising from thoracic diseases, chiefly from consumption, as may be ascertained from the statements made under each year.

Table of mortality from thoracic affections, in per centages.

|  | 1837. | 1838. | 1839. | 1840. | 1841. | Aver. |
|--|-------|-------|-------|-------|-------|-------|
| Miners . . . . .                         | 66·66 | 66·66 | 72·42 | 38·46 | 83·32 | 65·50 |
| Males not miners, }<br>above ten . . . } | 10·00 | 18·91 | 20·83 | 36·66 | 44·81 | 26·24 |
| Females above ten . .                    | 4·50  | 21·37 | 19·35 | 33·32 | 24·99 | 20·79 |

The miners are here again in considerable excess of the general population, as it regards the mortality from chest diseases. In 1840 it was at its lowest, and in 1841 at its highest development. In 1840 one is recorded as dying of atrophy, at 63, and he is not included in the list; one of small pox, and one of cholera. This year was a very unhealthy one, and many sunk, who had long been in a delicate state of health.

Accidents are not numerous but they divide themselves into two classes; in the first of which the men fall, and these are most commonly confined to the young, of which only a few are fatal. The number meeting with accidents, and some of a very serious character, are many more than the register indicates. The second class embraces such as are injured by materials, stones, &c., falling on them, and these include all ages.

Number and ages of persons accidentally killed, during five years.

| 1837.     |    | 1838.     |    | 1839.     |    | 1840.     |    | 1841. |
|-----------|----|-----------|----|-----------|----|-----------|----|-------|
| No. Ages. |    | No. Ages. |    | No. Ages. |    | No. Ages. |    | None. |
| 1         | 37 | 2         | 59 | 3         | 47 | 3         | 15 |       |
|           |    |           | 47 |           | 31 |           | 22 |       |
|           |    |           |    |           | 66 |           | 44 |       |

Among the male population not miners dying of diseases of the chest, the following are the occupations in which they were employed :—

1837.

1 Tinman, aged 21.

1 Sailor, „ 19.

1838.

1 Carpenter, aged 40.

1 Draper, „ 64.

4 { Fishermen } aged 27, 30,  
and  
Sailors, } 35, and 55.

4 others died of diseased heart, 1 hydrothorax, 1 bowel complaint, 1 hernia.

1839.

1 Draper, aged 29.

1 Labourer, „ 23.

3 Sailors, „ 26, 51, 76.

2 died of age, at 91, and 75 ; 1 diseased stomach, 1 drowned, 1 lumbar abscess, 1 of apoplexy.

1840.

1 Carpenter, aged 60.

4 Farmers, aged 55, 69, 15, 13 ; the others dying of cancer of lip and face. 1 killed, aged 95 ; 2 of age, 1 of fever.

Merchant, „ 27.

4 dying of age, and two suddenly.

Sailor, „ 50.

Tailor, „ 62.

Tinman „ 60.

Among the most healthy are farmers and farm labourers, more dying of old age in these occupations than in any other.

1842.

The number of deaths through the year is 215, and of these 16 are miners, 101, males not miners, and 98 females.

Of the 16 miners,—

|                              |                   |           |   |       |
|------------------------------|-------------------|-----------|---|-------|
| 3 died of consumption,       | }                 | = 25·50   | } | 44·25 |
| 1 „ hæmoptisis,              |                   |           |   |       |
| 2 died of chronic bronchitis | = 12·50 per cent. |           |   |       |
| 1 „ laryngitis,              | = 6·25 „          |           |   |       |
| 4 „ fever,                   |                   |           |   |       |
| 1 „ dropsy,                  |                   |           |   |       |
| 1 „ ileus,                   |                   |           |   |       |
| 1 „ scarlet fever            |                   |           |   |       |
| 2 „ accident,                |                   | = 12·50 „ |   |       |

The oldest miner died at 73, of fever; the youngest at 14, of scarlet fever and dropsy; and the average age for the year is 44 years 6 months.

Of the males not miners,—

|                 |                      |
|-----------------|----------------------|
| 20·00 per cent. | died of consumption, |
| 2·87 „          | bronchitis,          |
| 5·74 „          | pneumonia,           |
| 5·74 „          | hæmoptisis.          |

Of the females about 5·66 died of consumption.

1843.

The number of deaths during the year is 165, and of these 8 are miners, 65 males not miners, and 92 females.

Of the 8 miners, 4 died of consumption = 50·00 per cent.

|                |                   |
|----------------|-------------------|
| 1 „            | hepatitis,        |
| 1 „            | age,              |
| 2 were killed, | = 25·00 per cent. |

The oldest miner died at 80, of age; the youngest was killed, at 13. The average age for the year is 50 years 3 months.

|                           |                |                      |
|---------------------------|----------------|----------------------|
| Of the males, not miners, | 8·00 per cent. | died of consumption, |
|                           | 4·00 „         | hæmoptisis,          |
|                           | 4·00 „         | pleurisy.            |
| Of the females.....       | 15·09 „        | consumption.         |

1844.

The number of deaths for the year is 224; of these 14 are miners, 89 males, not miners, and 121 females.

Of the 14 miners, 7 died of consumption = 50·00 per cent.

3 „ typhus fever,

2 were killed, = 14·28 per cent.

1 died of suffocation,

1 „ age.

The oldest miner died of age, at 82; the youngest at 16, of typhus fever. The average age is 45 years 8 months.

Of the males above 10, not miners,

14·81 per cent. died of consumption

7·14 „ hæmoptisis,

11·10 „ pneumonia,

3·70 „ bronchitis,

3·70 „ laryngitis,

or 40·45 per cent of the general population dying of chest diseases above 10 years of age.

Of the females, 13·46 per cent. died of consumption.

1·92 „ pneumonia.

#### 1845.

The number of deaths during the year is 101; of these 11 are miners, 45 are males, not miners, and 45 are females.

Of the 11 miners, 6 died of consumption, or 54·54 per cent.

2 „ chronic bronchitis, or 18·18 per cent.

2 „ inflammation of the kidneys,

1 „ fever.

The oldest miner died at 65, of consumption; the youngest of fever, at 21. The average age for the year is 48 years 3 months.

Of males above 10, not miners, 5·26 per cent died of consumption.

Of the females above 10... 41·66 „ consumption.

#### 1846.

The number of deaths for the year is 133; of these 12 are miners, 50 males, not miners, and 71 females.

Of the 12 miners,—

6 died of consumption = 50·00 per cent.

1 „ bronchitis = 8·33 „

1 „ pneumonia = 8·33 „ 66·66 per cent.



of thoracic diseases,—

1 died of gastritis

1 „ hepatitis,

2 killed, = 16·66 per cent.

The oldest miner died at 63, of consumption ; the youngest was killed, at 18. The average age for the year is 43 years 9 months.

Of males, not miners, above 10,—

12·50 per cent. died of consumption.

Of the females above 10,—

30·55 per cent. died of consumption.

The number of deaths during the past five years are considerably greater than those of the last five. The greatest number in the first section occurred in 1841, when they amounted to 184 ; but during the present period, on two occasions the numbers exceeded this and reached 224 and 215, and on no occasion does it sink below 101. In 1842, the season was a very unhealthy one. Scarlet fever prevailed among the young, and carried off 18 males and 9 females below five years of age ; and also between the ages of 5 and 10 many sunk, both among the males and females. But there seems to have been during this year a feverish tendency in all diseases. Among the males, not miners, 5 died of fever ; and among the females, 9 died of the same disease—a most unusual circumstance now, for of our fever cases, but few die, while the deaths here recorded are more numerous than the cases that occur in most years ; and among the lying-in women, no less than four died of *Puerperal Peritonitis*. The autumn and winter were cold, and during these periods many of the old died. Among the males, five at ages varying from 96 to 78, and among the females, 15 sunk from age varying from 93 down to 82. But the greatest number of deaths occurred in 1844, when it rose to 224, and in 1843 to 164. In the latter part of 1843 and the whole of 1844, measles and hooping cough prevailed, and were very fatal ; and scarlet fever still lingered. In 1844, there died among the males below five years old, 18 from measles and 13 from hooping cough ; and among the females, 23 died of measles and 19 of hooping cough ; and many sunk from diarrhoea.

Debility in early childhood is still a cause for very many deaths annually. But among the miners, chest diseases still destroy more than half of those recorded. The greatest proportional number occurred in 1845, which in every other respect was an average year of sickness. In 1842, &c., the per centages were reduced by the prevailing epidemic.

In speaking of thoracic affections, all kinds of diseases attacking the lungs are included, and the analysis of these will be found in the summer of each year.

A table showing the frequency of chest affections between miners and the general population, for a period of five years.

| Names.                                 | 1842. | 1843. | 1844. | 1845. | 1846. | Average. |
|--|-------|-------|-------|-------|-------|----------|
| Miners . . . . .                       | 44·25 | 50·00 | 50·00 | 72·72 | 66·66 | 56·72    |
| Males not miners<br>above 10 . . . . . | 34·35 | 16·00 | 40·09 | 5·26  | 12·50 | 21·64    |
| Females above<br>10 . . . . .          | 5·66  | 15·09 | 15·38 | 41·66 | 30·55 | 21·66    |

Among the miners here recorded, it will be observed that there is much greater uniformity in the annual returns, than there is among either the non-mining males or females; but there is an almost uniform greater amount among the miners than the others, and the average of the five years gives the general result, arising no doubt from an uniform predisposing cause or causes, while the variation in the other classes may be accounted for by climactic changes. But even with this, the number of cases of chest affections seems large.

In 1844 there seems to have been an increase in the number of deaths from thoracic affections. But during that year 50 per cent. of the miners died of *consumption*; while of the 40 per cent. of other males not miners, 14·81 per cent. died of consumption; the others sinking from pneumonia and other similar attacks.

The other classes of persons sinking from consumption are—

Butcher, died of consumption, 1 in 3.

Carpenter, „ 1 „ 6.

Clerk, „ 1 „ 1.

|                        |         |         |
|------------------------|---------|---------|
| Farmer,                | „       | 6 „ 32. |
| Fishermen and Sailors, | 3 „ 36. |         |
| Shoemaker,             | „       | 3 „ 7.  |
| Smith,                 | „       | 1 „ 2.  |
| Tinman,                | „       | 1 „ 1.  |

All the other trades and professions record no death from consumption.

Turning to the other side of the question, and the aspect of longevity also points to the same thing: a larger amount of mortality among miners than among other classes, or that the proportionate duration of life is shortest among miners.

The oldest miner recorded is 82, and the next in age is 80 and 73; all the others died much younger,—none above 65.

Among the non-mining, we have two at 96, and six between 96 and 90, and very many between 90 and 80, and more between 80 and 70.

Among the females, the longevity is equally remarkable. There is one at 100, and many between that and 90. But if we take a lower standard, and fix 70, the following table will show the relative proportions of such above 10 as arrive at 70. The population is divided into three classes,—one from childhood to five years; the second from five to 10; the third from 10 to death. Of the number of persons above 10 who live to 70 and above, the subjoined table will show.

| Names.                  | 1842.   | 1843.   | 1844.   | 1845.   | 1846.   | Average.            |
|-------------------------|---------|---------|---------|---------|---------|---------------------|
| Miners.                 | 1 in 16 | 1 in 8  | 1 in 14 | 0 in 11 | 0 in 12 | 1 in 10 live to 70. |
| Males<br>not<br>Miners. | 9 „ 35  | 9 „ 25  | 9 „ 27  | 10 „ 19 | 8 „ 24  | 1 „ 3 „ 70.         |
| Females                 | 16 „ 53 | 18 „ 53 | 16 „ 52 | 13 „ 26 | 9 „ 36  | 1 „ 3 „ 70.         |

1847.

The number of deaths for the year is 131; of these, 10 are miners, 51 males, not miners, and 70 females.

Of the 10 miners, 1 died of consumption. = 10·00 per cent.

|   |         |                            |
|---|---------|----------------------------|
| 1 | died of | pleurisy,                  |
| 1 | „       | diseased heart and dropsy, |
| 1 | „       | phrenitis,                 |
| 1 | „       | hemiplegia,                |
| 1 | „       | suddenly,                  |
| 1 | „       | age,                       |
| 3 | „       | accident.                  |

The oldest died at 73, of age; the youngest was killed at 15.

The average age for the year is 49 years 2 months.

Of the males, not miners, above 10,—

6·89 per cent. died of consumption,

3·44 „ „ pneumonia.

Of females above 10,—

13·95 per cent. died of consumption.

#### 1848.

The number of deaths for the year is 160; of these, 11 are miners, 74 males, not miners, and 75 females.

Of the 11 miners,—

7 died of consumption = 63·63 per cent.

3 „ „ dysentery,

1 „ „ erysipelas.

The oldest died at 72, of dysentery; the youngest at 14, of consumption. The average age for the year is 42 years 9 months.

Of the males, not miners, above 10,—

17·85 per cent. died of consumption,

3·56 „ „ pneumonia.

Of the females above 10,—

10·63 per cent. died of consumption,

10·63 „ „ bronchitis,

2·12 „ „ pneumonia.

#### 1849.

The number of deaths for the year is 154; of these 11 are miners, 60 males, not miners, and 83 females.

Of the 11 miners,—

3 died of consumption, or 27·27 per cent.

1 „ pneumonia, or 9·09 per cent.

1 „ influenza,

1 „ age,

1 „ diarrhœa,

1 „ dropsy,

2 „ cholera,

1 was killed.

The oldest died at 84, of age ; the youngest was killed, at 15.

The average age for the year is 38 years 6 months.

Of the males, not miners, above 10,—

11·53 per cent. died of consumption.

Of the females above 10,—

11·11 per cent. died of consumption,

1·89 „ pneumonia,

7·40 „ asthma.

1850.

The number of deaths for the year is 146 ; of these 11 are miners, 57 males, not miners, and 78 females.

Of the 11 miners, 5 died of consumption = 54·54 per cent.

1 „ tracheitis,

1 „ suddenly,

2 „ killed.

The oldest died at 76, of consumption ; the youngest at 26, also of consumption. The average age for the year is 45 years 10 months.

Of the males, not miners, above 10,—

11·53 per cent. died of consumption,

11·53 „ pneumonia,

3·84 „ asthma.

Females above 10, 26·00 „ consumption,

6·00 „ asthma,

4·00 „ pneumonia.



1851.

The number of deaths for the year is 224; of these 16 are miners, 90 males not miners, and 118 females.

Of the 16 miners,—

|   |                     |                   |
|---|---------------------|-------------------|
| 4 | died of consumption | = 25·00 per cent. |
| 5 | „ dysentery         | = 31·25 per cent. |
| 2 | „ age,              |                   |
| 1 | „ nephritis,        |                   |
| 1 | „ malena,           |                   |
| 1 | „ small pox,        |                   |
| 1 | „ fever,            |                   |
| 1 | „ sudden.           |                   |

The oldest died at 87, of age; the youngest at 16, of fever. The average age for the year is 46 years 11 months.

Of the males not miners, above 10,—

|       |                                |
|-------|--------------------------------|
| 23·23 | per cent. died of consumption, |
| 3·33  | „ pneumonia.                   |

Of the females above 10,—

14·51 per cent. died of consumption.

The greatest rate of mortality occurred in 1851, which seems to have been a generally unhealthy season. Among the adults, dysentery prevailed to a very great extent, but was most fatal among the females, 31·66 per cent. dying from this cause alone. Among the young, in addition to diarrhoea and dysentery, small pox prevailed and carried off a great number.

The next most unhealthy year was 1848, when measles, hooping cough and dysentery were epidemic, and pneumonia and fevers were more than usually common. In 1849 cholera prevailed, and many sank from it. 1847 and 1850 seem to have been characterized by prevailing health.

During the period of five years ending in 1851, diseases of the chest still prevailed, and still had its chief development among the miners; but it is the most favourable towards the miner's health of any yet examined. The number is less than usual by nearly one half on the average of five years, and in 1851 the percentage is less than in the general male population; but in

consumption alone it still is above all the others. It must be remarked however, that during that year, five died of dysentery, and this considerably reduced the per centages of the other attacks.

It is somewhat remarkable that pneumonia is a somewhat rare disease among miners.

Table of thoracic diseases in miners and others.

|                                    | 1847. | 1848. | 1849. | 1850. | 1851. | Average. |
|------------------------------------|-------|-------|-------|-------|-------|----------|
| Miners. ....                       | 20·00 | 63·63 | 36·36 | 54·54 | 25·00 | 39·90    |
| Males not miners<br>above 10. .... | 10·33 | 21·41 | 11·53 | 26·90 | 26·56 | 19·34    |
| Females. ....                      | 13·95 | 23·38 | 20·40 | 36·00 | 14·00 | 21·58    |

The occupations of the males, not miners, in which consumption occurs, and the proportions in which they obtain, are as follows :

|                             |         |
|-----------------------------|---------|
| Blacksmith .....            | 1 in 5  |
| Carpenter .....             | 1 in 10 |
| Farmer .....                | 8 in 34 |
| Fishermen and Sailors ..... | 3 in 40 |
| Labourers .....             | 1 in 6  |
| Shoemakers .....            | 4 in 9  |
| Shipwrights .....           | 1 in 8  |
| Tailors .....               | 1 in 5  |

Having thus seen the rate of mortality in the general population, as well as among the miners, attention may now be paid to the proportions on each division attaining the age of 70 and upwards.

|                         | 1847.    | 1848.    | 1849.    | 1850.    | 1851.    | Average.           |
|-------------------------|----------|----------|----------|----------|----------|--------------------|
| Miners....              | 1 in 10  | 1 in 11  | 1 in 11  | 2 in 11  | 3 in 16  | 1 in 7 reaches 70. |
| Males not<br>miners.... | 14 in 29 | 11 in 28 | 6 in 26  | 10 in 26 | 12 in 30 | 1 in 3 nearly.     |
| Females ...             | 24 in 43 | 20 in 47 | 18 in 54 | 19 in 50 | 13 in 62 | 1 in 3 nearly.     |

The oldest men among the miners reached 87 and 84, the others ranging from 70 to 76. Among the general male population, one reached 92, and most of the others ranged about 87 to 84. Among

the females five were above 90, one being 97, and others fluctuating about 92 and 94, and more were between 80 and 90. So that the advantage of longevity is much more decisive in favour of the general population than appears in the accompanying table. And, on examining the returns made from the mines, as to the number and ages of the men actually engaged, it clearly appears that not 1 per cent. of the men above 70 are actually engaged, and those who are engaged are chiefly employed in some light work at the surface. The greatest part are, however, kept as invalids at home. But, among the farmers and farm labourers, many work till 70, and a few to 80, and yield only to mere old age.

Accidents are less numerous than in St. Just; in 1851, there were none; as was also the case in 1848. In 1849 one was killed in eleven, and two in eleven occurred in 1850, aged 44 and 36. In 1847, three out of eleven were killed at the ages of 15, 28, and 28.

## 1852.

The number of deaths for the year is 178; of these 12 are miners, 86 males not miners, and 80 females.

Of the 12 miners,—

|       |           |                      |
|-------|-----------|----------------------|
| 41.66 | per cent. | died of consumption, |
| 8.33  | „         | pneumonia.           |
| 8.33  | „         | diarrhœa,            |
| 8.33  | „         | fever,               |
| 8.33  | „         | killed,              |
| 8.33  | „         | apoplexy,            |
| 16.66 | „         | dysentery.           |

The oldest miner died of consumption, at 73; the youngest died of consumption, at 23. The average age for the year is 46 years 1 month.

Of the males not miners, above 10—

|      |           |                      |
|------|-----------|----------------------|
| 9.37 | per cent. | died of consumption, |
| 3.12 | „         | pneumonia,           |
| 6.25 | „         | asthma.              |

Of the females above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 10·90 | per cent. | died of consumption, |
| 3·63  | „         | pneumonia,           |
| 1·81  | „         | bronchitis.          |

During the year, many deaths among the females occurred from diarrhoea and dysentery, while the male population had only one death from these causes. Hooping cough also prevailed, and seven deaths are recorded, four among the males, and three among the females.

1853.

There died during the year 157; of these 11 were miners, 70 males not miners, and 76 females.

Of the 11 miners,—

|       |           |                      |
|-------|-----------|----------------------|
| 45·45 | per cent. | died of consumption, |
| 9·09  | „         | pneumonia,           |
| 9·09  | „         | asthma,              |
| 9·09  | „         | diarrhoea,           |
| 18·18 | „         | were killed,         |
| 9·09  | „         | fungus of leg.       |

The oldest miner died at 67, of consumption; the youngest at 13, of fungus of leg. The average age for the year is 44 years 1 month.

Of males not miners above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 24·00 | per cent. | died of consumption. |
| 4·00  | „         | asthma.              |

Of females above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 34·88 | per cent. | died of consumption, |
| 4·65  | „         | pneumonia.           |

1854.

There died during the year 196; and of these 14 were miners, 91 males not miners, and 91 females.

Of the 14 miners,—

|       |           |                      |
|-------|-----------|----------------------|
| 64·28 | per cent. | died of consumption, |
| 7·14  | „         | asthma,              |

|       |           |                    |
|-------|-----------|--------------------|
| 7·14  | per cent. | died of dysentery, |
| 7·14  | „         | died suddenly,     |
| 14·28 | „         | were killed.       |

The oldest miner died of consumption, at 76; the youngest was killed at 20. The average age for the year is 47 years 4 months.

Of the males not miners above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 18·51 | per cent. | died of consumption, |
| 3·70  | „         | pneumonia.           |

Of the females above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 40·00 | per cent. | died of consumption, |
| 2·85  | „         | bronchitis,          |
| 2·85  | „         | pneumonia.           |

During this year, scarlet fever prevailed, as well as measles. Among children below 5, 17 males and 10 females died of scarlet fever, and 11 died of measles.

#### 1855.

There died during the year 136; and of these 7 were miners, 67 males not miners, and 62 females.

Of the 7 miners,—

|       |           |                      |
|-------|-----------|----------------------|
| 42·85 | per cent. | died of consumption, |
| 14·28 | „         | diseased heart,      |
| 14·28 | „         | palsy,               |
| 14·28 | „         | suddenly,            |
| 14·28 | „         | from accident.       |

The oldest miner died at 78 suddenly; the youngest of diseased heart, at 15. The average age for the year is 43 years 10 months.

Of the males not miners above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 10·00 | per cent. | died of consumption, |
| 10·00 | „         | pneumonia.           |

Of the females above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 23·07 | per cent. | died of consumption, |
| 5·12  | „         | pneumonia.           |

The whole year was free from any prevailing epidemic.



1856.

There died during the year 120 ; of these 3 were miners, 59 males not miners, and 58 females.

Of the 3 miners,—

|       |           |                      |
|-------|-----------|----------------------|
| 33·33 | per cent. | died of consumption, |
| 33·33 | „         | diarrhoea,           |
| 33·33 | „         | killed.              |

The oldest died at 59, of diarrhoea ; the youngest was killed, at 14. The average age for the year is 41 years 8 months.

Of the males not miners above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 17·85 | per cent. | died of consumption, |
| 3·57  | „         | asthma.              |

Of the females above 10,—

|       |           |                      |
|-------|-----------|----------------------|
| 30·76 | per cent. | died of consumption, |
| 2·56  | „         | asthma.              |

This seems to have been an average year ; croup prevailed, but there are not many deaths recorded under this head.

The mortality for the last five years has not been characterized by much variation. The greatest number of deaths occurred in 1854, but this arose from the prevalence of scarlet fever and measles, which were very fatal in children below 5. The next in the scale of severity is 1852, when the deaths were 178, but during the summer and autumn diarrhoea and dysentery prevailed to a very great extent, and was very fatal. And the prevalence of any epidemic will considerably modify any estimate of the proportional occurrence of any class of diseases, in any section of persons, viz., adults and children, in which they may occur. The prevalence of thoracic diseases, observed much the same periods of severity as the general increase of mortality. The greatest amount of deaths from chest affections occurred in 1854, when it amounted to 71·42 per cent. The next two years of greatest severity were 1852 and 1853, equally remarkable as being highest in general mortality. But in 1856 when the general mortality sunk to 120, death from thoracic diseases were nearly equalized in all classes.

A table of mortality from thoracic diseases.

|                                   | 1852. | 1853. | 1854. | 1855. | 1856. | Average. |
|-----------------------------------|-------|-------|-------|-------|-------|----------|
| Miners .....                      | 44·99 | 64·63 | 71·42 | 48·85 | 33·32 | 53·64    |
| Males not miners<br>above 10..... | 18·74 | 28·00 | 21·21 | 20·00 | 21·42 | 21·87    |
| Females above<br>10.....          | 16·34 | 39·53 | 45·70 | 28·19 | 33·32 | 32·61    |

A table of the average mortality from thoracic diseases during each five years, for the period embraced in this paper of 20 years.

|                                  | 1837 to 1841 | 1842 to 1846 | 1847 to 1851 | 1852 to 1856 | Average. |
|----------------------------------|--------------|--------------|--------------|--------------|----------|
| Miners...                        | 65·50        | 56·72        | 39·90        | 53·64        | 53·94    |
| Males not<br>miners<br>above 10. | 26·24        | 21·64        | 19·34        | 21·87        | 22·24    |
| Females<br>above 10              | 20·79        | 21·66        | 21·58        | 32·61        | 24·16    |

From these tables it appears that even under the lowest rate of mortality of the miners from chest affections, the number is greater than the highest rate among the other classes, and that very commonly the miners more than double their deaths over that from the general male population, or the more susceptible females. If the average of each five years be taken, this result will be too uniform to be accidental, and in the average for twenty years, the deaths from this single class of diseases among miners, is more than what occurs both among the males and females together. Now as this result, with varying degrees of intensity, is observable also in the mining districts of St. Just as well as Lelant, it must be considered as arising entirely from the nature of the occupation of the miner. The results are rather more unfavourable even than they appear to be here.

In the chest affections among the miners, the largest numbers are consumption, and from *post mortem* examinations which I have made, the consumption here indicated may be taken as meaning tubercular disease; but among thoracic diseases of the general

population are great numbers of bronchitis and pneumonia—which are increased by and may depend entirely on climatic changes. Remove these from the investigation, and the disproportionately large numbers of miners sinking from consumption would present a frightful picture.

The occupations of the non mining males in which consumption, &c. occurs, and the proportions in which they obtain.

|                             |         |
|-----------------------------|---------|
| Barber .....                | 1 in 2  |
| Butcher .....               |         |
| Carpenter .....             | 3 in 9  |
| Cooper .....                | 1 in 2  |
| Draper .....                | 1 in 2  |
| Fisherman and sailors ..... | 7 in 56 |
| Farmer .....                | 2 in 29 |
| Gardener .....              | 2 in 3  |
| Sexton .....                | 1 in 2  |
| Shipwright.....             | 1 in 3  |
| Shoemaker.....              | 2 in 6  |

The numbers included in this list are so small, that no conclusion can be drawn from them. The farmers, labourers, and sailors, which are the most numerous and most exposed of our general population are not so liable to chest affections as miners.

In the former estimate the sailors were 1 in 13, in this 1 in 8. Farmers were also in a former estimate as 1 in 4, in this about 1 in 14, and most of the labourers died of age.

A table showing the proportions in which the age of 70 is attained in persons above 10.

|                                   | 1852. | 1853. | 1854. | 1855. | 1856  | Average. |
|-----------------------------------|-------|-------|-------|-------|-------|----------|
| Miners .....                      | 1—13  | 1—11  | 2—14  | 2—7   | 0—3   | 1 in 10  |
| Males not miners<br>above 10..... | 16—32 | 6—25  | 8—27  | 19—40 | 9—28  | 1 in 3   |
| Females .....                     | 17—55 | 14—43 | 13—35 | 6—39  | 11—38 | 1 in 4   |

The oldest miner for the past five years was 78, and one was 76; but among the general males there were three above 90, and

there were many between 90 and 80, ranging from 89 to 84 and 80. Among the females the oldest was 93, four others were at 90, so that longevity not only numerically, but in actual age is considerably in favour of the general population.

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*An examination into the mortality of the Agricultural population of the district of St. Buryan from June 1837 to 1856, in comparison with the mortality of the Miners.—R. Q. C.*

The district of St. Buryan is purely an agricultural one, and embraces the parishes of St. Buryan, St. Levan, and Sennen. It lies contiguously to St. Just and to the south of it. On the west its irregular shores are bounded by the Atlantic. This includes the Lands-end and Tol-pedn-penwith. The southern shores are also washed by the ocean. Inland it is bounded on the north by St. Just, and on the east by Paul and Sancreed, portions of other districts already examined. The whole of the area is composed of coarse granite, except a small portion or point of rocks at the water mark called the Black Rock, inside the Bucks and the immediate eastern point from Carn Boscawen. The shores are bold and steep, the cliffs precipitous. On the northern margin of the district where it joins St. Just, are several high hills, such as Chapel Carnbrea, Bartinney, &c. ; but to the south of this, there are no elevations of importance. The surface is very undulating, and the valleys generally shallow. The whole of the district consists of an elevated table land, and the valleys seem to be depressions or ravines sunk in it. The valley of Lamorna is short, deep, picturesque and sterile. The valley with the stream of St. Loy, is short and well wooded from the domain of Boskenna. The valley of Penberth is short, abrupt and picturesque leading up to the bottoms, where it is well cultivated. All the other valleys opening to the sea, are mere valley-like indentations of the shores. The general appearance of the country is that it is unwooded, but in a fair state of cultivation. The farm-houses are good and the cottages for the labourers much more habitable and surrounded with more domestic comforts than those of the miners generally. The sleeping apartments are not all that could



be desired, either for number or space, but still they are much better than the cottages in the remote portions of St. Just, and greatly better than the cottages of Lelant, Towednack, &c. The men are altogether engaged in agriculture, except a few miners who reside on the borders of St. Just; but these will be carefully separated in the following investigation. There is not a mine in the district; but there is tin in the stream running from Lamorna. A small quantity has been found in the eastern branch, but in the western it has been found abundantly throughout its whole length. The district is therefore entirely agricultural. There are but few villages in the district. The church town of St. Buryan, Penberth fishing cove, Treen, St. Levan, Sennen and Sennen Cove, near the Land's-end are the chief. The inhabitants are not huddled together, except the fishermen's huts at Sennen Cove, which are exceedingly bad. The inhabitants are not very numerous, and are much scattered. St. Buryan has 1,658 inhabitants, St. Levan 502, and Sennen 652, making altogether 2,812, composed of an agricultural and a fishing population. The trade occupations amount to nothing, for there is but little more than the inn-keeper, blacksmiths, and carpenters. The population may therefore be considered in a fair position to maintain health and enjoy longevity.

### ST. BURYAN.

1837.

There died during the half-year ending December, 25; of these 13 were males, and 12 females.

Of the 13 males,—

4 were engaged in agriculture,  
 1 was a blacksmith,  
 1 „ sailor,  
 1 „ miner,  
 1 „ pauper,  
 1 „ shoemaker,  
 4 were young.

Of the general male population above 10, 33·33 per cent died of diseased chest.



Of the 4 agriculturalists,—

1 died of consumption = 25·00 per cent.

1 „ apoplexy,

1 „ brain fever.

Of the 12 females,—

3 died of chest affections = 25·00 per cent.

The oldest male died at 81, of cancer of the lip.

The oldest female died at 88, of age.

Of all the male deaths 23·00 per cent. died below 5.

Of all the female deaths, 33·33 per cent. died below 5.

1838.

There died during the year 42 ; of these 18 were males, and 24 females.

Of the 18 males,—

7 were engaged in agriculture,

4 were sailors,

1 was a blacksmith,

1 „ shoemaker,

4 were young.

Of the general male population, 23·07 per cent. died of diseased chest.

Of the 7 agriculturalists, 1 died of consumption, a day labourer, = 14·28 per cent. All the others died of age, at 80, 82, 83, 84, 84, 88.

Of the 24 females,—

0 died of consumption,

1 „ pneumonia = 4·16 per cent.

The oldest female died of age, at 90.

Of all male deaths, 33·33 per cent. died below 5 years of age.

Of all female deaths, 37·50 per cent. died below 5 years of age.

1839.

There died during the year 41 ; of these 22 were males, and 19 females.

Of the 22 males 11 were agriculturalists,

1 was a schoolmaster,

1 „ clergyman.

All the others died young. Of all males above 10 = 15·37 per cent. died of consumption.

Of the 11 agriculturalists,—

1 died of consumption = 9·09 per cent.

2 „ age, at 86 and 88.

2 „ inflamed leg, at 83 and 67.

2 „ dyspepsia, at 70 and 78

1 „ stoppage of bowels, at 70.

1 „ debility, at 61.

1 „ hydro-thorax, at 52.

1 „ fever, at 31.

Of the 19 females,—

0 died of consumption.

8 „ age, at 94, 83, 83, 82, 77, &c.

1 „ dropsy, at 62.

The oldest male died at 88, a farm labourer.

The oldest woman at 94, of age.

Of all male deaths, = 36·36 per cent. died under 5.

Of all female deaths, = 31·57 per cent. died under 5  
1840.

There died during the year 43; of these 21 were males, and 22 females.

Of the 21 males, 5 were agriculturalists, all the others were below 10 years of age.

Of the 5 agriculturalists,—

1 died of consumption = 20·00 per cent.,

2 „ age, at 84 and 74,

1 „ debility after fever,

1 „ enteritis.

Of the general male population above 10, 20·00 per cent. died of consumption.

Of the 22 females,—

0 died of consumption,

1 „ pneumonia, or 4·54 per cent.

The oldest male died of age, at 84.

The oldest female died of age, at 85.

Of all male deaths = 66·66 per cent. died below 5.

Of all female deaths = 31·81 per cent. died below 5.

Scarlet fever and small pox occurred among children, but was not very fatal.

1841.

There died during the year 73; of these 37 were males, and 36 females.

Of the 37 males,—

9 were agriculturalists,

2 „ blacksmiths,

2 „ shoemakers,

1 was a soldier,

1 „ fisherman.

Of the general male population 13·33 per cent. died of consumption.

Of the remaining 22, 15 died below 5 years old, 9 of debility, 2 of small pox, 1 of burn, 1 of scarlet fever, 1 of croup, 1 of pneumonia.

Of the 9 agriculturalists,—

0 died of consumption,

5 „ age, 99, 92, 77, 75, 71,

1 „ brain fever,

1 „ small pox,

1 „ fits at 28,

1 „ stoppage of the bowels.

The oldest male, an agricultural labourer, died at 99, of age.

The oldest female died of age, at 88.

A table showing the comparative frequency of thoracic diseases between the miners of St. Just, Lelant and St. Ives, and the agriculturalists of St. Buryan.

|                                   | 1837. | 1838. | 1839. | 1840. | 1841. | Average. |
|-----------------------------------|-------|-------|-------|-------|-------|----------|
| St. Just.. . . . .                | 41·6  | 33·33 | 52·62 | 47·81 | 40·90 | 44·06    |
| Lelant. . . . .                   | 77·77 | 49·98 | 71·42 | 67·75 | 73·33 | 68·05    |
| St. Ives. . . . .                 | 66·66 | 66·66 | 72·42 | 38·46 | 83·32 | 65·50    |
| Agriculturalists<br>of St. Buryan | 25·00 | 14·28 | 9·09  | 20·00 | 0·00  | 13·67    |

St. Just stands in very favourable contrast with Lelant and St. Ives, but the contrast between the miners of St. Just and the agriculturalists of St. Buryan is very striking, and greatly in favour of the agriculturalist. In St. Just, the most healthy of the mining districts, the prevalence of thoracic disease of a fatal character is more than three times as much as it is in St. Buryan, though the districts lie side by side.

The trades or occupations in which thoracic diseases occur exclusively of the agricultural class with these proportions are.

|                    |        |
|--------------------|--------|
| Blacksmith.....    | 2 in 4 |
| Fisherman .....    | 1 in 3 |
| Shoemaker.....     | 2 in 4 |
| Schoolmaster ..... | 1 in 1 |
| Soldier .....      | 1 in 1 |

This freedom from chest affections among the male population is equally apparent among the females. For including the whole of the female population, the amount is considerably less than what is observed either in St. Just or Lelant.

A table showing the frequency of thoracic affections in females of a mining population, and of an agricultural district.

| Females.                      | 1837. | 1838. | 1839. | 1840. | 1841. | Average. |
|-------------------------------|-------|-------|-------|-------|-------|----------|
| Mining.<br>St. Just.....      | ..... | ..... | ..... | ..... | ..... | .....    |
| Mining.<br>Lelant. ....       | 30·00 | 17·91 | 31·02 | 36·36 | 31·72 | 31·72    |
| Agriculture.<br>St. Buryan. . | 25·00 | 4·16  | 0·00  | 0·00  | 5·55  | 6·94     |

The longevity is also very remarkable; in the half year of 1837 three died above 70, and of these two were above 80; and in 1838 out of 18 males of all ages, 7 died above 70, and so indeed among all the other years. It was seen among the mining population that more than half the deaths occurring, took place below 5 years of age, which was considerably above the average ratio. But in this agricultural parish the per centage is considerably reduced.

A table of per centages of death below 5, in Buryan.

|            | Males.      | Females. |
|------------|-------------|----------|
| 1837 ..... | 23·00 ..... | 33·33    |
| 1838 ..... | 33·33 ..... | 37·50    |
| 1839 ..... | 36·36 ..... | 31·57    |
| 1840 ..... | 66·66 ..... | 31·81    |
| 1841 ..... | 41·66 ..... | 36·11    |

1842.

There died during the year 54; of these, 28 were males and 26 females.

Of the 28 males,—13 were agriculturalists,

- 3 ,, carpenters,
- 1 was a blacksmith,
- 1 ,, fisherman,
- 1 ,, shoemaker,
- 1 ,, a sexton.

Of the remaining 8, all died below 5 years of age.

Of the 13 agriculturalists,—

- 0 died of consumption,
- 4 ,, age, 82, 80, 78, 75,
- 2 ,, suddenly, 72, 72,
- 1 ,, stoppage of the bowels, at 75,
- 1 ,, dropsy, at 56,
- 1 ,, of diseased liver, 48,
- 1 ,, enteritis,
- 1 ,, fever,
- 2 ,, debility, 57, 44.

Of the 26 females,—

- 5 died of age, 90, 87, 81, 77, 60.
- 2 ,, consumption, = 7·69 per cent.,
- 3 ,, dropsy, 78, 64, 26,
- 2 ,, in childbirth,
- 1 ,, enteritis,
- 1 ,, fever,
- 1 ,, brain fever,
- 1 ,, cholera.



Of the remaining ten, all died below 5 years of age.

The oldest male died at 82, a farmer, of age.

The oldest female died at 90, of age.

Of all the male deaths, 28·57 per cent. died below 5 years of age.

Of all female deaths, 36·11 per cent. died below 5.

### 1843.

There died during the year 49 ; of these, 22 were males and 27 females.

Of the 22 males,—

- 6 were agriculturalists,
- 1 was a baker—suddenly, 32,
- 1 „ fisherman, age 85,
- 1 „ glazier,
- 1 „ miner, of consumption.

Of the 6 agriculturalists,—

- 0 died of consumption,
- 3 „ age, at 87, 83, 80,
- 1 „ fever,
- 1 „ accident,
- 1 „ diabetes,

Of the 27 females,—

- 2 died of consumption, = 7·40 per cent.
- 4 „ age, at 90, 88, 84, 76,
- 3 „ fever,
- 2 „ dropsy, 74, 49,
- 1 „ palsy, at 80,
- 1 „ enteritis,
- 1 „ diarrhoea,
- 1 „ in childbed.

and ten died below 5 years of age.

The oldest male died at 87 years of age.

The oldest female died at 90 years of age.

Of all male deaths, 50·00 per cent. died below 5 years of age.

Of all female deaths, 37·03 per cent. died below 5 years of age.  
Scarlet fever prevailed among the males below 5, and not among the females.

1844.

There died during the year 59; of these, 32 were males, and 7 females.

Of the 32 males, 9 were agriculturalists.

Of the remaining 23,—20 died below 5 years of age; principally of hooping-cough, measles and pneumonia.

Of the 9 agriculturalists,—

2 died of consumption, = 22·22 per cent.

1 „ age, 75,

1 „ palsy, 77,

1 „ dropsy, 70,

1 „ stoppage of the bowels,

1 „ measles,

1 „ enteritis,

1 „ throat cancer, 77.

Of the 27 females,—

4 died of consumption, = 14·81 per cent.

3 „ age, 94, 77, 75,

1 „ dropsy, 79,

1 died suddenly, 66,

1 „ phrenitis,

1 „ in childbed.

The oldest male died at 77 years of age.

The oldest female died at 94 years of age.

Of all male deaths, 62·50 per cent died below 5.

Of all female deaths, 51·85 per cent. died below 5.

Measles and hooping-cough prevailed.

1845.

There died during the year 38; of these 25 were males and 13 females.

Of the 25 males,—

7 were agriculturalists,

2 „ sailors,

1 was a fisherman,  
 1 „ miller,  
 1 „ carpenter.

Of the 7 agriculturalists,—

0 died of consumption,  
 4 „ age, 88, 78, 78, 74,  
 2 „ fever,  
 1 „ enteritis, at 70.

Of the 13 females,—

2 died of consumption, = 15.38 per cent.  
 1 „ age, 78,  
 1 „ cancer of the breast.

The oldest male died at 88 years of age.

The oldest female died at 85, of cancer.

Of all male deaths, about 44.00 per cent. died below 5 years of age.

Of all female deaths, 23.07 per cent. died below 5.

1846.

There died during the year 42 ; of these 23 were males and 19 were females.

Of the 23 males,—

10 were agriculturalists,  
 2 „ blacksmiths,  
 2 „ shoemakers,  
 1 was a miner, of consumption.

Of the 10 agriculturalists,—

1 died of consumption = 10.00 per cent.  
 1 „ retention of urine, 85,  
 2 „ hepatitis,  
 1 „ hydro-thorax,  
 2 „ fever,  
 1 „ typhus,  
 1 „ apoplexy, 22,  
 1 „ unknown.

Of the 19 females,—

2 died of consumption = 10·52 per cent.

6 „ age, 95, 93, 84, 80, 80, 76.

1 „ palsy, 71.

The oldest male died of fever, at 87.

The oldest female died of age, at 95.

Of all male deaths, 34·78 per cent. died below 5.

Of all female deaths, 31·54 per cent. died below 5.

The freedom from diseases of the chest among agriculturalists is again very apparent when compared with the mining districts, or with the trades having indoor occupation.

<sup>A</sup> table of comparative frequency of chest affections in miners and agriculturalists.

| Males.                                | 1842. | 1843. | 1844. | 1845. | 1846. | Average. |
|---------------------------------------|-------|-------|-------|-------|-------|----------|
| Miners,<br>St. Just. ....             | 47·81 | 35·29 | 59·25 | 71·35 | 55·55 | 53·85    |
| Miners,<br>Lelant. ....               | 50·00 | 57·14 | 75·00 | 57·14 | 56·12 | 59·08    |
| Miners,<br>St. Ives. ....             | 44·25 | 50·00 | 50·00 | 72·72 | 66·66 | 56·72    |
| Agriculturalists,<br>St. Buryan. .... | 0·00  | 0·00  | 22·22 | 0·00  | 10·00 | 6·44     |

In 1837, as well as in 1843, the death of a miner is recorded in the parish of Sennen, forming a portion of the district of St. Leven, and one of these died of consumption and the other of fits. The average of small numbers is very likely to be erroneous, by being excessive, as every case is forced into undue importance, but yet in these two cases of miners, the general conclusion of prevalence of consumptive disease in the class to which they belong is indicated. So here among the agriculturalists, the low per centage of chest diseases, might have in the first five years been accidental, yet this accidental character is partially destroyed by the same result being observed in this the second series of years. Among the female population also, the agricultural districts are much more favourable to health

than in the mining. Now as the females in each case are similarly occupied about domestic affairs at home, or in the one case, by occasionally working in the fields during the spring and summer, or in the other, by working at the mines at the surface under sheds, there must be something in transmitted influences from parents to children to account for the diversity in regard to health. The daughters of miners, who have married agriculturalists, are more liable to chest colds than others, and most of them die off in consumptious or bronchial attacks before attaining any great age. This will be seen by the following table.

A table of comparative mortality from chest affections in females of mining and agricultural districts.

| Females.                        | 1842. | 1843. | 1844. | 1845. | 1846. | Average. |
|---------------------------------|-------|-------|-------|-------|-------|----------|
| Mining.<br>St. Just. ....       | 21·73 | 16·35 | 16·06 | 27·58 | 29·54 | 22·55    |
| Mining.<br>Lelant. ....         | 18·75 | 22·33 | 45·71 | 38·84 | 32·50 | 31·22    |
| Mining.<br>St. Ives. ....       | 5·66  | 15·09 | 15·38 | 41·66 | 30·55 | 21·66    |
| Agricultural.<br>St. Buryan. .. | 7·69  | 7·40  | 14·81 | 15·38 | 10·52 | 11·16    |

From this table it appears that the average amount of mortality among the female mining population is nearly twice as great as that observed among the agriculturalists.

The rate of mortality among children below 5 years of age is also considerably less than what obtains among the miners, as may be seen by the following table, and it is in a less ratio also than the genoral one of the kingdom

Rate of mortality below 5 years of age in St. Buryan.

|            | Males.          | Females.        |
|------------|-----------------|-----------------|
| 1842 ..... | 28·57 per cent. | 36·11 per cent. |
| 1843 ..... | 50·00   ,,      | 37·03   ,,      |
| 1844 ..... | 62·50   ,,      | 51·85   ,,      |
| 1845 ..... | 44·00   ,,      | 23·07   ,,      |
| 1846 ..... | 34·78   ,,      | 31·54   ,,      |



Trades in which thoracic diseases occurred in St. Buryan, and the ratio of their occurrence.

|                     |        |
|---------------------|--------|
| Blacksmith. ....    | 1 in 3 |
| (a case of asthma.) |        |
| Carpenter. ....     | 1 in 4 |
| Fishermen ....      | 0 in 5 |
| Shoemaker ....      | 2 in 3 |
| Miner ....          | 2 in 2 |

1847.

There were 49 deaths during the year ; of these 36 were males and 13 females.

Of the 36 males,—

14 were agriculturalists,  
 2 „ fishermen,  
 1 was a mason,  
 1 „ shoemaker,  
 1 „ miner, who died of consumption,  
 1 „ gentleman,  
 1 „ blacksmith.

Of the remaining 15, 13 died below 5 years and 2 above.

Of the 14 agriculturalists,—

2 died of consumption = 14·28 per cent.  
 3 „ age, 82, 81, 61,  
 2 „ palsy, 78 and 60,  
 5 „ fever,  
 1 „ suddenly,  
 1 „ erysipelas,

Of the 13 females,—

1 died of consumption = 7·69 per cent.  
 2 „ age, at 84, 84,

The oldest male, a farm labourer, died at 82.

The two oldest females died at 84.

Of all male deaths, 36·11 per cent. died below 5.

Of all female deaths, 30·07 per cent. died below 5.

1848.

There were 49 deaths during the year ; of these 26 were males and 23 females.

Of the 26 males,—

9 were agriculturalists,

1 was a fisherman, of age, 73,

1 „ shoemaker, of stomach disease, at 51,

1 „ an excise officer, of consumption, 25.

Of the remainder, 12 died below five, and two under 10 years of age.

Of the 9 agriculturalists,—

3 died of consumption = 33·33 per cent.

2 „ age, at 79 and 76,

1 „ palsy, at 84,

1 „ enteritis, at 80,

1 „ dysentery, at 64,

1 „ disordered stomach.

Of the 23 females,—

6 died of consumption = 26·08 per cent.

4 „ age, at 93, 87, 82, 73 = 17·30 per cent.

The oldest male, a labourer, died at 84, of palsy.

The oldest female died at 93, of age.

Of all male deaths, 46·15 per cent. died below 5.

Of all female deaths, 17·39 per cent. died below 5.

1849

During the year 35 died ; and of these 13 were males and 22 females,

Of the 13 males,—

8 were agriculturalists,

1 was a fisherman,

1 „ mason.

Of the remaining 3, all were below 5 years of age.

Of the 8 agriculturalists,—

0 died of consumption

4 „ age,

1 died of palsy, at 79,  
 1 „ dropsy, at 78,  
 1 „ suicide,  
 1 „ fever.

Of the 22 females,—

1 died of consumption = 4·54 per cent.

8 died of age, from 93 downwards.

The oldest man, a farm labourer, died at 81, of age.

The oldest woman died of age, at 93.

Of all male deaths, 23·07 per cent. died below 5 years of age.

Of all female deaths, 45·45 per cent. died below 5.

#### 1850.

There died during the year 38 ; and of these 22 were males and 16 females.

Of the 22 males, 9 were agriculturalists.

Of the remaining 13, all were below 5 years of age.

Of the 9 agriculturalists,—

1 died of consumption = 11·11 per cent.

3 „ age, at 84, 78, 74,

2 „ cancer of stomach, at 64, 51,

1 „ debility, at 51,

1 „ dropsy,

1 „ fever.

Of the remaining 13, all were below 5.

Of the 16 females,—

0 died of consumption,

2 „ age = 12·50 per cent.

The oldest man was a farmer, and died at 84,

The oldest woman died of age, at 86.

Of all male deaths, 59·09 per cent. died below 5 years of age.

Of all female deaths 37·50 per cent. died below 5.

#### 1851.

There died during the year 43 ; of these 18 were males and 25 were females.

Of the 18 males,—

4 were agriculturalists,

1 was a mason,

1 „ coastguard.

Of the 4 agriculturalists,—

1 died of consumption = 25·00 per cent.

1 „ retention of urine,

1 „ debility,

1 „ dropsy.

Of the 25 females,—

3 died of consumption = 12·00 per cent.

6 „ age = 24·00 per cent.

The oldest male, a mason, died at 84, of age.

The oldest female died at 88, of age.

Of all male deaths, 61·11 per cent. died below 5 years of age.

Of all female deaths, 16·00 per cent. died below 5.

The result of the examination of the past 5 years gives the same relative advantage of an agricultural population over that of the mining, as it regards consumption, as the previous ten years had done. And this is still further confirmed by the greater numbers of agriculturalists who live to 70, in addition to the many who attain extreme old age. The advantages of the agricultural population in reference to thoracic diseases may be seen by the subjoined table.

A table of the comparative frequency of thoracic diseases in the mining and agricultural districts.

| Males.                           | 1847. <small>55</small> | 1848. | 1849. | 1850. | 1851. | Average. |
|----------------------------------|-------------------------|-------|-------|-------|-------|----------|
| Miners.<br>St. Just.. . . .      | 63·32                   | 57·13 | 70·35 | 53·10 | 62·50 | 61·28    |
| Miners.<br>Lelant. . . . .       | 61·89                   | 69·23 | 64·70 | 57·13 | 47·61 | 60·11    |
| Miners.<br>St. Ives. . . . .     | 20·00                   | 63·63 | 36·36 | 54·54 | 25·00 | 39·90    |
| Agricultural.<br>St. Buryan. . . | 14·28                   | 33·33 | 0·00  | 11·11 | 25·00 | 16·74    |

The lowest rate of mortality among miners is more than twice as much as occurs among the agriculturalists.

A table showing the rate of mortality among the females of the mining and agricultural districts.

| Females.         | 1847. | 1848. | 1849. | 1850. | 1851. | Average. |
|------------------|-------|-------|-------|-------|-------|----------|
| St. Just. ....   | 24·99 | 14·69 | 33·33 | 21·42 | 29·14 | 24·71    |
| Lelant. ....     | 35·87 | 24·48 | 16·85 | 40·67 | 22·00 | 29·97    |
| St. Ives. ....   | 13·95 | 23·38 | 20·40 | 36·00 | 14·51 | 21·64    |
| St. Buryan. .... | 7·69  | 26·08 | 4·54  | 0·00  | 12·00 | 10·06    |

From this table it appears that thoracic diseases in an agricultural district among females who can have little or nothing to do with mining operations, or agricultural pursuits, is less than one half as much as in the most favourable of the mining districts.

A table showing the ratio of chest affections in trades, &c.

Fisherman ..... 0 in 4

Blacksmith. .... 1 in 1

Coastguard. .... 1 in 1

(A case of pneumonia.)

Mason ..... 2 in 3

Shoemaker ..... 0 in 2

Miner ..... 1 in 1

A table showing the rate of mortality below 5.

|            | Males.      | Females. |
|------------|-------------|----------|
| 1847 ..... | 36·11 ..... | 30·07    |
| 1848 ..... | 47·16 ..... | 17·39    |
| 1849 ..... | 23·07 ..... | 45·45    |
| 1850 ..... | 59·09 ..... | 37·50    |
| 1851 ..... | 61·11 ..... | 16·00    |

1852.

There died during the year 60; and of these 31 were males and 29 females.

Of the 31 males,—

12 were agriculturalists,



1 was a shoemaker,

1 „ smith,

1 „ boy of 11.

Of the 16 remaining, 12 were below 5 years of age, and 4 between 5 and 10.

Of the 12 agriculturalists,—

4 died of consumption = 33·33 per cent.

1 „ bronchitis = 8·33 per cent.

4 „ age, = 33·33 per cent.

1 „ diseased bladder,

2 „ fever,

1 „ scarlet fever.

Of the 29 females,—

3 died of consumption = 10·34 per cent.

8 died of age = 28·57 per cent.

3 „ dropsy.

The oldest male—a labourer—died at 71 years of age.

The oldest female died at 88 years of age.

About 38·70 per cent. of all males died below 5 years of age.

About 27·58 per cent. of all females died below 5.

## 1853.

During the year, 48 died; of these, 24 were males and 24 females.

Of the 24 males,—

8 were agriculturalists,

2 „ sailors,

1 was a carpenter,

1 „ mason,

1 „ shipwright.

Of the remaining 13, 9 died below 5 years of age, and 1 between 5 and 10.

Of the 8 agriculturalists,—

2 died of consumption = 25 per cent.

2 „ age,

1 „ lumbar abscess,

1 died of dropsy,  
 1 „ diseased stomach,  
 1 „ diabetes.

Of the 24 females,—

2 died of consumption = 8·33 per cent.  
 5 „ age.

The oldest male, a farmer, died at 93 years of age.

The oldest female died at 85 years of age.

Of all males, 37·50 per cent. died below 5 years of age.

Of all females, 37·50 ditto.

1854.

During the year there died 52; of these, 29 were males and 23 females.

Of the 29 males,—

8 were agriculturalists,  
 2 „ sailors,  
 1 was a pauper,  
 1 „ unknown, drowned.

Of the remaining 17, 15 died below 5, and 2 between 5 and 10.

Of the 8 agriculturists,—

0 died of consumption,  
 4 „ age, at 91, 88, 74, 72,  
 3 „ dropsy, at 76, 74, 64,  
 1 „ killed, at 27.

Of the 23 females,—

2 died of consumption = 8·69 per cent.  
 5 „ age.

Of the remaining,—8 died below 5 years of age, and one between 5 and 10.

The oldest man, a farmer, died at 91 years of age.

The oldest woman died at 91 years of age.

Of all male deaths, 31·03 per cent. died below 5 years of age.

Of all female deaths, 34·78 per cent. died below 5.

1855.

There died during the year 40 ; and of these, 20 were males and 20 females.

Of the 20 males,—

9 were agriculturalists,  
3 ,, fishermen,  
2 ,, miners,  
1 was a mason,

Of the remaining 10, all died below 5 years of age.

Of the 9 agriculturalists,—

1 died of consumption = 11·11 per cent.  
5 ,, age, 90, 89, 82, 75, 71,  
1 ,, abscess of the liver,  
1 ,, disease of the stomach,  
1 was killed.

Of the 20 females,—

4 died of consumption = 20·00 per cent.

6 ,, age, 91, 90, 82, 79, 69, 65, = 30·00 per cent.

The oldest male, an agricultural labourer, died at 90 years of age.

The oldest female died at 91 years of age.

Of all male deaths, 25·00 per cent. died below 5 years of age.

Of all females, 30·00 per cent. died below 5 years of age.

1856.

There died during the year 44 ; of these, 23 were males, and 21 females.

Of the 23 males—

10 were agriculturalists,  
1 was a shoemaker,  
1 ,, fisherman,  
1 ,, miner.

Of the remaining ten, all died below 5 years of age.

Of the 10 agriculturalists,—

1 died of consumption = 10·00 per cent.  
4 ,, age, 80, 80, 75, 74,

- 1 „ gastritis = 56 per cent.  
 2 died of fever,  
 1 was killed,  
 1 died of cancer of the stomach.

Of the 21 females,—

- 1 died of consumption = 4·76 per cent.  
 8 „ age, 90, 86, 81, 77, 76, 75, 75, 75,  
 1 apoplexy, 78,  
 and 6 died below 5 years of age.

The two oldest males died at 80, farmers.

The oldest female died at 90 years of age.

Of all males, 42·27 per cent. died below 5 years of age.

Of all females, 29·04 per cent. died below 5 years of age.

The statements given above of the sanitary condition of the agricultural population during the past five years, are confirmatory of what has been previously remarked in every year since 1837. The agricultural population is, as it regards thoracic affections, greatly more healthy than the mining classes. If St. Buryan be compared with St. Just, they occupy similar geographical positions, lie contiguously to each other, with the same climate, same vegetable productions, equally surrounded by the fresh air from the open ocean, and yet they are so widely separated as it regards health and longevity, that it becomes a matter for serious enquiry—why the agricultural districts are so very healthy, and why the mining districts are so unhealthy, and whether or not the mortality of the miner cannot be reduced.

During the past five years the frequency of chest affections may be seen by the subjoined table.

A table of mortality from thoracic affections in the mining and agricultural districts from 1852 to 1856.

| Males.              | 1852. | 1853. | 1854. | 1855. | 1856. | Average. |
|---------------------|-------|-------|-------|-------|-------|----------|
| St. Just.. . . . .  | 41·66 | 50·50 | 50·00 | 56·66 | 50·00 | 49·76    |
| Lelant. . . . .     | 61·90 | 56·62 | 60·71 | 52·16 | 60·00 | 58·27    |
| St. Ives. . . . .   | 49·99 | 64·63 | 71·42 | 48·85 | 33·32 | 53·64    |
| St. Buryan. . . . . | 41·66 | 8·33  | 8·69  | 20·00 | 4·76  | 17·55    |

In 1852 there is an equality between St. Just and St. Buryan, but in every other year the contrast is very great, and in the average of the five years, the deaths from chest diseases are more than three times as much in Lelant and St. Ives, as in St. Buryan.

A table of mortality from chest affections in females in the mining and agricultural districts.

| Females.         | 1852. | 1853. | 1854. | 1855. | 1856. | Average. |
|------------------|-------|-------|-------|-------|-------|----------|
| St. Just.....    | 18·18 | 23·91 | 38·53 | 23·21 | 16·07 | 23·98    |
| Lelant. ....     | 29·59 | 40·81 | 41·01 | 34·69 | 18·41 | 32·90    |
| St. Ives .....   | 16·34 | 39·53 | 45·70 | 28·19 | 33·32 | 32·61    |
| St. Buryan ..... | 10·34 | 8·33  | 8·69  | 20·00 | 4·76  | 10·42    |

The females in the agricultural districts are, again, more healthy than those in the mining ones. In the above table it will be seen that in the most favourable, St. Just, the mortality is more than twice as great as that observed in St. Buryan. This is also borne out by the number of children who died below 5 being much less in St. Buryan than any among the mining population.









